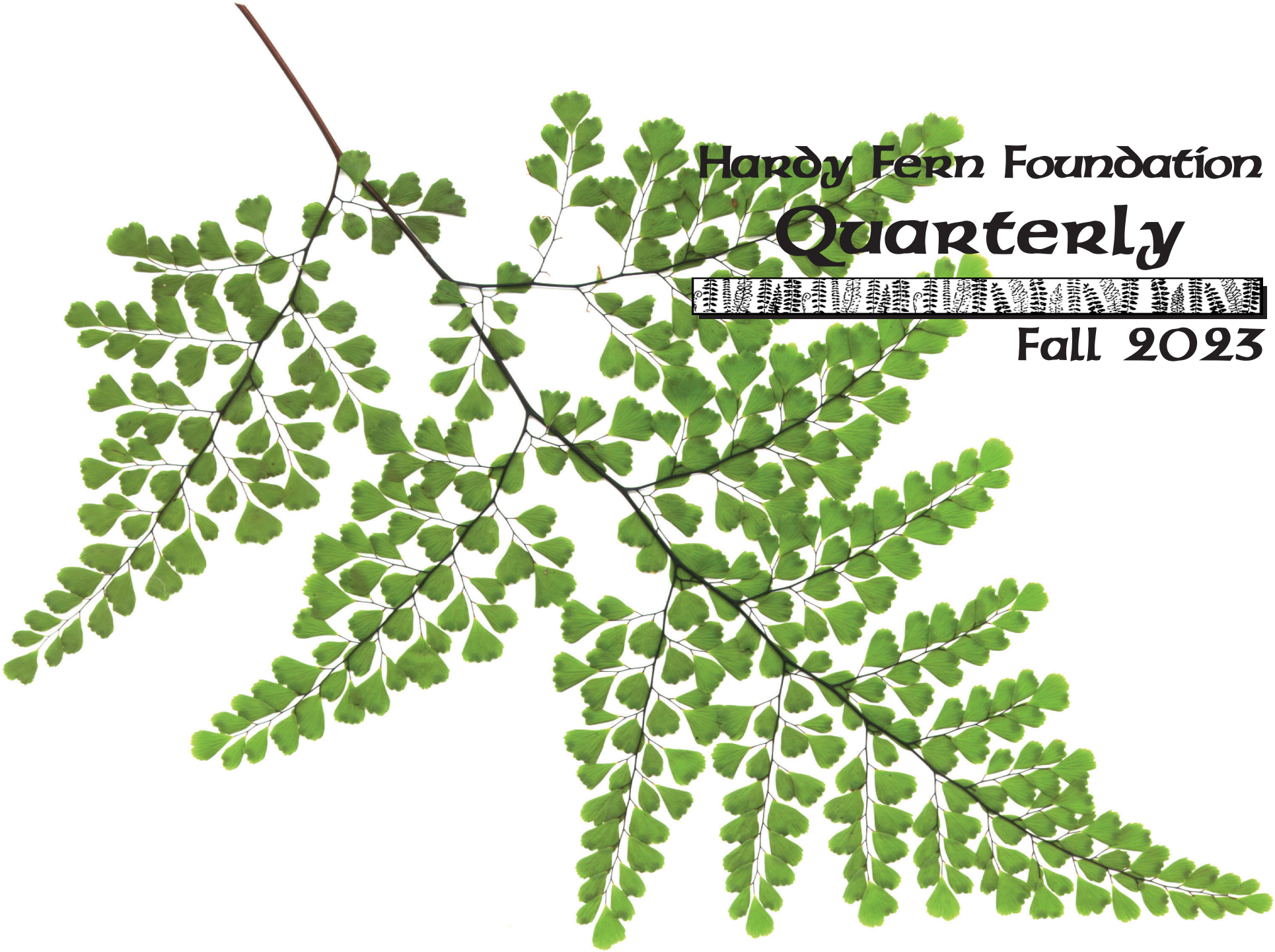

Hardy Fern Foundation Quarterly

Fall 2023

THE HARDY FERN FOUNDATION

P.O. Box 3797
Federal Way, WA 98063-3797
Web site: www.hardyferns.org

The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Affiliate fern gardens are at the

Bainbridge Island Library, Bainbridge Island, Washington;
Bartlett Arboretum & Gardens in Stamford, Connecticut;
Bellevue Botanical Garden, Bellevue, Washington;
Birmingham Botanical Gardens, Birmingham, Alabama;
Cornell Botanic Gardens, Ithaca, New York;
Dallas Arboretum, Dallas, Texas;
Denver Botanic Gardens, Denver, Colorado;
Dixon Gallery and Gardens, Memphis, Tennessee;
Ganna Walska Lotusland, Santa Barbara, California;
Georgia State University Perimeter College Native Plant Botanical Garden, Decatur, Georgia;
Heronswood, Kingston, Washington;
Inniswood Metro Gardens, Columbus, Ohio;
Lakewold, Lakewood, Washington;
Lewis Ginter Botanical Garden, Richmond, Virginia;
Powell Gardens, Kingsville, Missouri;
Rotary Gardens, Janesville, Wisconsin;
Whitehall Historic Home and Garden, Louisville, Kentucky.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

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President's Message

Hello Hardy Fern Foundation Community:

I hope you have been enjoying our lovely, lingering autumn, with gorgeous sunsets and numerous days for gardening. Here at the Hardy Fern Foundation, we have much to report and look forward to in 2024:

Fern Fest 2023 and 2024. This year's Fern Fest plant sale at the Bellevue Botanic Garden was a rousing success, with over 500 HFF ferns sold. Our partner vendors sold another 900 plants in total, and the two-day event was filled with community connections and many new plant discoveries for attendees. Mark your calendars for June 1-2, 2024, and please spread the word: Fern Fest will be returning to the BBG, with even more exciting HFF fern offerings.

HFF Tour of Far Reaches Botanical Conservancy. In July we sponsored a terrific tour of the FRBC in Port Townsend, hosted by the organization's founders, Kelly Dodson and Sue Milliken. The tour was a "Behind the Greenhouse Door" opportunity to view some of the Conservancy's new and rare specimens, and the in-progress Collectors Shade Garden that FRBC is constructing to care for their shade-loving collections. Kelly and Sue highlighted the FRBC's growing fern collection, most found on their collecting trips and not available in commerce. We are honored that the duo will be sharing a new Zoom presentation for HFF's Annual Meeting Lecture in late October: Sikkim – A Paradise of Plants (and a Fern or Two) in Northern India.

Joint Lectures with the British Pteridological Society (BPS). Continuing our rich collaboration with the BPS in England, HFF will be sponsoring five upcoming lectures, in November and December 2023, and January, February and March 2024. These joint lectures, which began during the pandemic, have enabled HFF and BPS members to connect, share knowledge and learn more about ferns growing on both sides of the Atlantic. The Zoom sessions are fascinating deep dives into fern discovery, collection, and cultivation and are a must-watch event for curious fern fans.

Fern Cutback Workshop. Looking ahead to March, HFF will again hold a Fern Cutback session at the Stumpery in the Rhododendron Species Botanical Garden. Last year's workshop was a super fun and productive event, with inspiring teaching and demonstrations from Richie Steffen, and an opportunity to work in the Stumpery itself, with its gorgeous, mature specimens. The group teamed up to cut back and tidy the garden for its season of renewal and new growth, followed by a special visit to the HFF hoop house to see the diverse array of ferns under cultivation. This is a free event, open to all members.

Events in 2024. Next year, we plan to offer a rich mix of learning opportunities through classes and tours around the region. I am energized by the opportunities ahead for our organization and our community.

Program Manager Changeover. Finally, we are saying farewell to Dennis Beatty, our highly capable, excellent program manager for the last three years. While Dennis is taking on a new opportunity, he will remain in the area and in our community. On behalf of the HFF Board, I am expressing my deep appreciation for his multi-faceted talents and the work he has done for our organization.

Yours in garden passion,

Bonnie Berk,
HFF President

Ireland's Native Ferns

Daniel Mount
Carnation, WA

I am an unlikely candidate to author an article on the native ferns of Ireland having never set foot on the Emerald Isle. But nothing makes the unlikely more likely than a stroll through the internet.

So, I let my fingers do the walking.

And the first place I stumbled into was a town called Ferns in County Wexford in southwestern corner of the country. The name was more than likely anglicized from the Gaelic "fearna" (which Google translates as "man"). The place, once the capital of Ireland, was not named for a plant, nor was it named for a botanist or a gardener, but for St. Aiden, also known as the Bishop of Ferns. Now, there is a title to aspire to.

Anyway, as usual a Google search leads to digressions.

There was relatively little information online about the native ferns of Ireland. Many of Ireland's ferns are the same as those in England or Europe at large, so Ireland is usually included in these larger floras. Still I knew there must be special ferns there with a mild and moist climate which seemingly would support a preponderance of them. But trying to find them wasn't easy.

Luckily I was rescued by an email from Jim Dennison of Limerick. A longtime member of the British Pteridological Society and someone who has actually put in the footwork, having hiked the island for decades looking for ferns, many times with his co-hort Martin Rickard, who was kind enough to forward my question-ladened email to Dennison. We have included Dennison's list of some of the pteridological rarities to be found in Ireland at the end of this article.

Strangely Ireland has a rather low number of fern species, somewhere between 46-60, by current counts. According to the British Pteridological Society, Germany, with a much colder climate, has 84 species, and Italy with a much drier climate has 118, the most for any European country. There are 2 factors that I believe play heavily in the this.

The first is topography. Ireland is a relatively flat country, with its highest peak, Carrantuolhill, a mere 3414 feet, while Germany tops out at 9718 feet and Italy at 15,780 feet. Also, both the later countries are over double the size of Ireland. The second factor is forest cover. Ireland forest coverage is a mere 11%, Italy's is 31% and Germany's is 33%. There is just more habitat variability on the continent. This leads me to believe that the major limiting factor in the number of native ferns in Ireland is habitat.

Where one finds the most fern diversity in Ireland is the one area of the island that

mimics the topographical variability of the continent. That is the Killarney District of County Kerry. A 1980-1 survey found 41 species, hybrids and subspecies there. A varied geology, the dramatic McGillicutty Reek (a mountain range that includes Carrantuohill Mountain) and some old remnant oak forests at lower elevations certainly are major factors in the presence of numerous species there. Some of my garden favorites can be found there, like soft shield fern (*Polystichum setiferum*) mountain male fern (*Dryopteris oreades*) and hart's tongue fern (*Asplenium scolopendrium*). You can also find ferns that are native throughout the U.S., like oak fern (*Gymnocarpium dryopteris*), maidenhair spleenwort (*Asplenium trichomanes)* and northern wood fern (*Dryopteris expansa*), to name a few.

That said the Emerald Isle is home to two of the rarest ferns in Europe: *Trichomanes speciosum* (the Killarney fern) and the recently discovered *Stenogrammitis myosuroides* a "blow-in" from the Caribbean islands. They are both protected and their exact locations kept secret. Dennison's list below enumerates many of the other rarities there.

But don't get the picture that Ireland is covered in rarities. Bracken (*Pteridium aquilinum*) is as much a nuisance there as it is in Washington or New York. And Lady fern (*Athyrium filix-femina)* is a bothersome garden weed, just like here at home. Though Ireland's native fern flora is sparse (Japan has 600!!) it is still a great place to grow ferns, as you can read in the {articles} in this issue.

With my fingers tired from wandering the meandering paths of my keyboard I turn over this article to Jim Dennison.

Rare Native Species of Ireland

Jim Dennison
Limerick, Ireland

Asplenium billotii: As far as I am aware, only one station on the Beara Peninsulas in County Cork.

Asplenium onopteris: A few locations mainly in Counties Cork and Kerry.

Asplenium obovatum: Two or three sites on the East Coast of Ireland, half a dozen more in Counties Cork and Kerry.

Blechnum cordatum: A large evergreen fern recorded from Counties Cork and Kerry and often found in garden centres under the name *Blechnum chilensis*.

Cryptogramma crispa: Only one record for the Republic in County Donegal, a few more sites in Northern Ireland.

Cystopteris diaphana: One site recorded in County Cork.

Dryopteris oreades: Only four stations recorded, all on the West coastline of Kerry, Galway, Sligo and Donegal.

Dryopteris kerryensis: Believed initially to be restricted County Kerry, now four or five new stations all in the south.

Dryopteris affinis subsp. paleaceolobata: Two stations only in County Kerry.

Gymnocarpium robertianum: In the USA it is protected in Illinois and Michigan. It has one station in County Galway first recorded in the early part of the last century but still extant today.

Matteuccia struthiopteris: Appears sparsely throughout Ireland, mainly in northern counties.

Onoclea sensibilis: Two stations only recorded, one in County Galway, the other in County Leitrim.

Polystichum lonchitis: Less than twenty stations recorded, mainly in the mountainous regions of Counties Kerry, Galway, Leitrim and Donegal

Stenogrammitis myosuroides: The latest addition to Irelands fern flora, Recorded in 2019 from Killarney County Kerry. A'blow in' from the cloud forests of Central America. A first for Ireland, and also for Europe. Two or three more stations found since in Killarney.

Trichomanes speciosum: It was named the 'Killarney Fern' after its sighting at the Torc Waterfall in Killarney County Kerry in 1804. It was, and probably still is, one of the most protected plants in Europe. Its sites very much kept secret from the general public, after it was avariciously collected in the late 1800's.

The Killarney Fern is a plant of almost permanently moist sheltered situation. Low light is a typical feature of where it is found.

Rare Wild Occurring Hybrids

Asplenium x clermontiae: *A. ruta muraria x A. trichomanes* is an extremely rare hybrid. A single station only recorded three or four years ago from Killarney County Kerry. Again not recorded with the BSBI and thought to be endemic to Ireland although a plant has been recorded as having been seen in the North of England although no official record and none from Europe as far as I know.

Asplenium x ticinense: A hybrid between *A. adiantum nigrum* and *A. onopteris*. Only recorded from three localities in Europe which sadly may no longer be extant (certainly when I last checked a few months ago it was not there,) was endemic to Ireland from one record in County Down in Northern Ireland in the 1800's - I don't have any records for Europe other than for France where it is not recorded.

Dryopteris x deweveri: Four stations scattered throughout Ireland.

Dryopteris x complexa: A few scattered locations throughout Ireland, probably under recorded.

Polypodium x shivasiae: A hybrid between *P. cambricum* and *P. interjectum* from one site only in County Limerick

Polypodium x mantoniae: A hybrid between *P. interjectum* and *P. vulgare*'. The

commonest of the three native Polypodium hybrids in Ireland and Britain. Recorded from a few sites on the East Coast.

Polystichum x bicknellii: *P. aculeatum x P. setiferum* 'Lowland Hybrid Shield fern' A few scattered localities mainly in the Northern half of the country.

Polystichum x illyricum: *P.aculeatum x P. lonchitis* reported from a single station in County Leitrim.

Polystichum x lonchitiforme: *P. lonchitis x P. setiferum* found in only one station in County Leitrim, apparently its only other recorded station being in Greece.

Some Interesting Rare Cultivars

***Asplenium septentrionale* 'Ramo-cristatum':** Two stations on acidic rocks in Co. Galway. (*)

***Polypodium cambricum* 'Cambrian Killarney':** The second Killarney Fern. The original form was first found in South Wales in 1668 by Richard Kayse. *P. cambricum 'Cambrian Killarney'* was found in 2010 in Ireland.

***Polystichum setiferum* 'Divisilobum Crawfordianum':** A single plant was found in 1861 by a labourer of a Mrs. Crawford, on her 5748-acre estate in Crawfordsburn County Down Northern Ireland.

It was found at the height of the Victorian Fern Craze and presumably collected. Fronds were sent to Kew Gardens and the Belfast Botanic Gardens where herbarium specimens still survive. Over the past thirty or so years - after numerous searches -and false sightings, none of which have proven successful the search still goes on for this elusive and beautiful fern.

"RARE" STENOGRAMMITIS MYOSUROIDES

KILLARNEY FERN TRICHOMANES SPECIOSUM

Caher Bridge Gardens

Article and Photos by Carl Wright
Fanore, County Clare, Ireland

In 1996 I bought a derelict cottage in the Burren region of County Clare on the west coast of Ireland. This region is well known for its spectacular limestone landscape, archaeology, abundance of ancient monuments, and a profusion of wildflowers. Many species of orchids, are to be found here along with *Gentiana verna* and *Dryas octopetala* often in huge numbers especially in spring. The native flora is a unique and curious mix of alpine, arctic and Mediterranean species occupying a vast range of habitats from sea level to high mountain plateaus. There are bogs, marshlands, heath land, woodlands, meadows, sand dunes, tidal marshes, scree slopes, turloughs and bare limestone pavements all represented in this region with their associated flora. It is therefore a popular destination for visitors who are drawn by the unusual lunar like landscape, the coastal scenery and of course the vast range of flowers. It is an unforgiving landscape though with barely any soil covering the limestone, no large trees and a difficult climate. It is described as temperate oceanic, having cool summers and normally mild, wet winters. Temperature extremes are rare with averages in summer being around 14 - 16c and in winter, 4 - 7c, although it does not enjoy the frost free conditions found on other parts of the west coast and frost can occasionally be quite severe. Snow is rare and short lived but we always get a day or two, quite often in early spring. Rainfall is high, on average 250 days and around five feet per year. Our skies are 100% covered in cloud for over 50% of the year! It is probably the worst part of Ireland to consider creating a garden!

Creating a garden was not my original intention. I simply wanted to restore my cottage and enjoy the wildness surrounding me. My background is ecology with a particular interest in wild flowers, fungi and wildlife in general so I was more than happy to have a few acres of wild land around me which I intended to leave to evolve as it wished. I had little experience in gardening and absolutely no interest or knowledge of garden design. Little did I imagine that twenty years later I would have developed such an obsessive interest in gardening and create, apparently, one of the most unusual and creative gardens in the country.

It all started by accident when I needed to clear up the area immediately around the house after several years of building work. The intention was to open up the space in front of the cottage creating a small manageable

area between the house and the adjacent road. There was previously never a garden here, the entire area around the house being originally bare limestone pavement with small pockets of soil in the grykes (natural fissures in the limestone). It was used as grazing rough pasture land up until the 1960's. Since then it had become colonised by a dense thicket of *Prunus spinosa* (Blackthorn) and *Corylus avellana* (Hazel), a small developing woodland type habitat.

There was no useable soil on the property at all so all the soil required to make a garden has been brought in from other areas. This in itself has become a bit of an obsession to say the least! Since 1999 more than 1,500 tons of soil has been imported, all of which has been sieved by hand to remove weeds, rocks and rubbish! The entire garden which now covers an area of approximately two acres is made of raised terraces and beds built directly onto the limestone and filled with imported soil. The average depth of most of the beds would be around 12 inches but often much less. In most areas this would simply not be practical but due to the wet climate here it just about works.

Sourcing useable soil in the West of Ireland is a major challenge. Due to the glaciated landscape and high rainfall, we have some of the poorest quality top soils in Europe here. Most of what is described as 'topsoil' is in fact glacial subsoil which requires much improvement to make it useable in the garden.

Any new project here takes a lot of time and effort. Clearing a new space, importing the necessary soil, sorting it out and then actually getting it into the garden manually, all takes time and is of course entirely weather dependant. Some years if the weather is particularly difficult (like this one has been), it is impossible to move and sort soil or even get it delivered.

In the beginning I didn't really consider selecting something suitable for what I intended growing, but now if possible I try to source acidic soil to give me a wider range of plant options.

Due to the abundant rainfall, the garden is normally reasonably wet, but on the rare occasion of more than three days without rain there are problems as the thin layer of soil very rapidly drains. The original trees and bushes I retained also claim much of the available moisture exasperating the problem. This problem has generally been increasing in recent years partly due to the maturity of some of the plants requiring more water and also a noticeable shift in climate patterns.

Conditions here are very difficult, unpredictable and variable from year to year. Despite this, I have managed to find a vast range of plants which tolerate the conditions and actually thrive here, and in doing so have created a natural looking garden containing many interesting and unusual plants.

Because the garden was never planned, and the conditions are so challenging, it has evolved slowly and naturally over the years. It was never intended to be a conventional garden, the main objective was to create something that worked visually and ecologically, a space that worked within the surrounding landscape. I also did not want a new feel to the garden or any defined boundaries with the neighbouring land. It had to feel established from the very beginning and sit comfortably into the surrounding Burren landscape.

In some ways this was easy to achieve by retaining many of the native trees and shrubs which were present on the site and by leaving areas of woodland to separate different parts of the garden, dividing it up into various 'rooms'.

Wherever you look in this region you will see rock, either as the hard landscape or in the miles and miles of walls which weave their way across the hills and valleys. Walls are everywhere, some of them going back to the bronze age more than three thousand years ago. It made absolute sense to include as many walls as possible within the garden and was a practical way of using up the rocks which are cleared for any new project. They are also one of the key ways of visually merging the garden with the surroundings and, if built as 'drystone' (without mortar) are extremely beneficial to the local ecology. They are rapidly colonised by many native mosses, lichens and ferns too, adding greatly to their value. It only takes about one year here for a new wall to become covered in vegetation! To date I have built over one mile of stone walls here. My newly discovered love for building and stonework has led to the inclusion of many interesting features throughout the garden, with each new project becoming more adventurous and, some would say, eccentric. My current project has been the construction of a folly. A sham ruin of a round tower complete with gothic doorways and windows etc. It might eventually become a viewing tower commanding stupendous vistas of the

local valley.

In the beginning, I was simply planting pretty much anything that I thought might grow here, often gifts or plants 'borrowed' from abandoned country gardens found on my travels. There were a few 'must haves' though, and fairly quickly I started to consider a few collections of things that I was particularly fond of. One of the first things I planted was a clump of snowdrops in the lawn outside my front door. I love them, I have done since childhood, so the idea of a few in the lawn was very appealing. That original clump has now been divided many times and spread to cover the entire lawn.

At the time I was only aware of the ordinary *Galanthus nivalis* and its double form but after a while I realised that there were other species available along with a growing mania for collecting various cultivars. I got hooked and so the collecting disease began!

I soon discovered that lawns, which I had always despised, were in fact very useful things. They don't have to be boring, high maintenance monocultures of grass. They offer endless possibilities for planting and interest throughout the year, so now I grab any opportunity to make a new one which can be filled with various bulbs to provide interest from winter into early summer. Swathes of snowdrops, crocus, bluebells, fritillarias, camassia, species tulips and daffodils all fill my lawns with a minimum network of paths mown through them. In summer the bulbs give way to meadow grasses and wild flowers which last well into autumn. By managing the mowing, (I only mow most of the lawns once a year), the wildflowers are able to seed around and increase each year, with every year bringing new surprises. I am fortunate to have twelve species of native orchids happily colonising the lawns, none of which have been planted, they just appear and gradually spread where happy. Some could easily be described as 'weeds' here now!

I use the lawns for two other major collections apart from snowdrops, Hawthorns and Irish cultivar daffodils.

Hawthorns are the commonest tree in Ireland, they are everywhere. It was perfectly logical to start planting more throughout the garden as they fit seamlessly into the surrounding landscape and are of enormous ecological value. They also provide a long season of interest with masses of white blossom in May followed by the beautiful red berries in late summer which last well into autumn. We only have one species in Ireland, but worldwide there are over two hundred species so it was inevitable that I would start to get a few different ones. There are now twenty four different species and cultivars here, which, I believe to be the largest collection in the country.

Around six years ago I was given a small collection of Irish daffodils. In the early part of the last century Ireland had a thriving daffodil industry which sadly has all but gone. The many growers were rapidly developing and producing new cultivars to woo the gardeners of the time. Although many of these have been lost in the mists of time, there are still plenty that survived, and there are still a handful of growers enthusiastically developing new ones. Daffodils generally do well here so I thought it would be an interesting project to start collecting the Irish ones, old and new. Six years ago I created another large new grass area to put them in. That collection has expanded rapidly and now contains almost three hundred varieties grown in drifts amongst the grass.

The plant collecting thing certainly took hold and now, twenty years on, the garden contains a number of other notable collections including *Astilbe,*

Hydrangea, Mahonia, Aucuba, Bergenia, Hosta, Crocosmia, Hawthorns and of course, ferns.

Ferns absolutely love it here. The damp climate and lack of sunshine suit many of them literally down to the ground. The woodlands around me here are full of them, every wall and tree is covered in them, they even grow in the house gutters, drain covers and I've spotted young ones trying to grow in the rubber seals of the car windows!

I've always loved them so they were an obvious and ideal choice to collect, fitting effortlessly into the garden here. The native *Dryopteris filix-mas*, *Asplenium scolopendrium* and *Polypodium australe* are so prolific that if not thinned every year would happily evict every other garden plant.

The Burren is also home to some beautiful native species such as *Adiantum capillus-veneris* and *Asplenium marinum*, both found in profusion deep in the limestone fissures along the coast where they enjoy protection from frost and relentless salt laden winds off the neighbouring Atlantic Ocean. *Adiantum capillus-veneris* grows well in sheltered spots in the garden but *Asplenium marinum* seems to require a constant supply of salty air to thrive and will not grow just one mile inland.

I am currently growing over one hundred and thirty different species and cultivars, most of which do extremely well with little or no attention. Unfortunately borderline hardy ones or ones from drier climates do not succeed here although I have recently found a few corners under the trees which seem sheltered enough for *Dicksonia* and *Cyathea* to survive without winter protection. *Woodwardia radicans* is also happy in the shelter of a north facing woodland wall as is *Lophosoria quadripinnata*. Unlike some parts of the Irish west coast, this area is simply too cold for magnificent stands of tree

ferns to flourish.

In recent years I have been experimenting with different batches of soil in an attempt to create specific ph zones for certain species and in the process have discovered that some ferns which are supposed to have a preference for certain soils are in fact not at all fussy.

The osmundas in particular are completely at home in any soil and generally do well here even in dryer conditions. I guess our high humidity is the key.

As my collections continue to expand (can you ever have enough plants?) so does the garden, but I have to constantly remind myself that I'm unfortunately not getting younger!

Soon, I will have to stop developing further areas, but for now I'll just keep going.

New Member List

Carey Beckham
Karen Cleghorn
Craig Cummings
Linda deWilde
Toni Furfaro-Oswalt
Naomi Goodman, Firecracker
Harriet Herschel
Heidi Keller
Lyle McClelland
Linda McCullough
Debbie McLaughlin
Wayne Segal
Brenna Sellars, Land & Garden Preserve
David Short
Kirk Shy
Deborah Smith
Alsia Soiset
Nicole Stanley
Marian Swisher
Steve Wills
Nancy Wittman

Save the Dates!
Upcoming HFF & BPS Webinars

November 11 - Ferns of the Azores with Fred Rumsey

December 16 - Ferns of the Pacific Northwest with Richie Steffen

January 20 - Cold Tolerant Pyrrosias with Remko Beuving

Watch for Zoom sign in information.

Gardens of Ireland Not to Be Missed

Article and Photos by Dave Gibson
Bainbridge Island, WA

Ireland and its gardens have been on my bucket list to visit for as long as I can remember. Following is a sample list of gardens that we visited in May 2023 and we feel they should be on every garden lover's list when visiting Ireland.

County Clare

Caher Bridge Garden

This was one of the highlights of my Ireland garden tour. A place I will differently not forget and will return to. I can't decide what impressed me the most about the owner of this garden Carl Wright. His fearless ability to plant a garden in this inhospitable location with little to no topsoil, in a windy location near the coast or his ability to build rock structures that will stand the test of time and that blend seamlessly into the existing terrain. There is a wide variety of plants in the garden with hydrangeas dominating many beds and his collection of ferns. It's not surprising that even the local fox visits regularly. During our visit viburnums and hawthorns were in full bloom. See Carl's article in this issue where he describes his fabulous garden.

Phymatosorus scolopendria

David Wright, Maggie, Carl Wright and Dave Gibson

County Cork

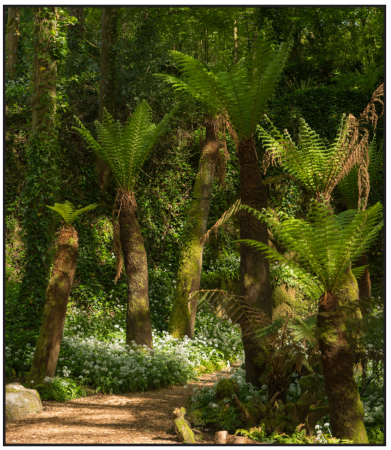
Bantry House and Gardens

This historic House dating back to 1710 has been open to the public since 1946. We stayed here in one of the five rooms available to rent. This was my first stay in a stately home and it was a highlight of all the places we stayed at in Ireland. Bantry House has been in the White family since 1750. The garden was designed by Richard White 2nd Earl of Bantry and was inspired by the gardens in Italy. The original design with its seven terraces is now covered with a variety of rhododendrons and azaleas. The pond near the house is surrounded by *Wisteria floribunda* and *W. sinensis* and was

in full bloom during our stay in mid-May. *Adiantum venustum* and aspleniums can be found in the beds directly beneath. Ferns can be found along the trail that follows a small stream at the right rear of the property that ends at a walled garden that is now in ruins. The top of the steps at the rear of the house gives you a spectacular view of the house and surrounding Bantry Bay.

Blarney Castle and Gardens

While my wife Lori was waiting in line to kiss a rock, I was out enjoying a well-manicured garden. There is something for every garden enthusiast at Blarney Castle and Gardens. The estate has a wide variety of plants and native wildlife. The original castle dating back to 1210 was destroyed in 1446 and rebuilt. There is a long history of ownership changes up to the present day. The castle now sits in partial ruin. Surrounding the castle are the 60 acres of gardens. Highlights are the old rock quarry fern garden that has a large collection of *Dicksonia antarctica* trees with a small waterfall. Other sections of the garden include the boardwalk with water loving plants and waterfalls, an herbaceous border with a rose covered pergola, a tropical border with banana, yuccas and a variety of colorful tropical plants, a carnivorous courtyard, a poison garden and a Vietnamese woodland garden. The oldest section of the garden,



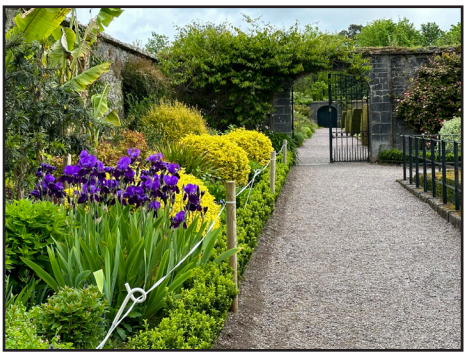
Dicksonia antarctica

Blarney House build in 1874

the rock close, is shaded by ancient yew trees. The roots clinging to the rocks are thought to be 600 years old.

Foto House, Arboretum and Gardens

Foto House is an 18th century former hunting lodge of the Smith Barry family. It has an 11 acre 150 years old arboretum. Being near Cork harbor with its mild climate and warm soil it's a perfect location for a large collection of trees many from the southern hemisphere, Asia and the coast of the pacific northwest area of the U.S. Other highlights include the walled garden, rose garden, orangery and a working Victorian garden. The garden layout dates back to the Smith Barry family of the 18th century as well. As always, my focus was on ferns and especially tree ferns and I was pleasantly surprised with the Victorian fernery and other ferns scattered through the gardens. Other parts of the property include a wildlife park and golf course on the 780 acres estate.



Garinish Island

A must see on anyone's garden tour of Ireland. This island/garden is 37 acres. The weather here is directly influenced by the gulf stream which places it in zones 9b to 10a. The garden was designed by Harold Ainsworth Peto who is well known for creating some of the finest gardens in England including his home base Iford Manor in Wiltshire England. He redesigned this garden using the arts and crafts ideas with neo-classical Italianate architecture. After strong winds damaged the original plantings, Scottish gardener Murdo MacKenzie rebuilt the garden. He added tall trees, mostly pines, to create sheltered belts. These belt areas were planted with rare and tender plants mostly from the southern hemisphere. This world renowned classically designed Italian garden has a pool which is surrounded by yews, colonnades and raised terraces. *Blechnum chilense* can be found next to the steps of the Casita. The area called the jungle is where you will find woodland shade plants like *Rhododendron falconeri*, a variety of camellias and *Dicksonia antarctica* fern trees. The lovely walled garden which was originally designed to grow vegetables, cut flowers and fruit is now used for growing a variety of herbaceous and bulbous plants, shrubs, vines and trees.

County Kerry

Derreen Garden

Derreen Garden covers 60 acres along the coast of the Beara peninsula and has a long history dating back to 1320. The garden built on a rocky peninsula with ocean views started taking shape in 1870 when Lord Lansdowne planted 400 acres of trees surrounding the estate to shelter his growing collection of rare tender tropical plants. Due to its warm micro climate Derreen garden is well known as a great place to see large tree ferns and rhododendrons. Happily, the tree ferns survived the cold snaps of 2009/2010. Many gardens in Ireland and Great Britain were not as fortunate and lost or had severe damage to tree ferns. A number of the gardens we visited especially ones influenced by the gulf stream have ferns that have naturalized. In the pacific northwest we can only dream of *Dicksonia antarctica* spreading on its own.

Kells Bay House and Gardens

Kells Bay House and Garden which opened in 2008 in County Kerry has one of the largest collections of tree ferns in the EU. Not only was the garden full of exotic plants and native ferns to explore but it is also a relaxing bed and breakfast. In case that wasn't enough, on the property is a Thai restaurant and the Conservatory Cafe serving tea and tasty treats. There is really no reason to leave. Kells Bay Garden is protected by its location which is a short valley with acid rich soil and mild climate. This makes this 40 acres garden a perfect place for native and southern hemisphere plants. Many exotic ferns have naturalized like *Blechnum chilense, Blechnum discolor, Blechnum magellanicum, Blechnum nudum, Blechnum novae-zealandiae, Blechnum tabulare, Dicksonia antarctica and D. squarrosa*. Scattered around the garden you will also find a wide selection of Irish native ferns like *Asplenium trichomanes, Adiantum, athyrium, Blechnum spicant* and a large clump of *Osmunda regalis* in the boggy garden. *Hymenopphyllum* 'filmy fern' can be found growing on moist shady banks. Congratulations goes to Billy Alexander owner of Kells Bay House and Garden on receiving a gold medal and Best in Pavilion at the prestigious RHS 2023 Chelsea Flower Show in London.

NHS president Keith Weed presenting Billy Alexander award for best in Pavilion. Photo Courtesy of Cork Beo.

Muckross House and Gardens

After hiking the Yellow Loop Trail up and around Torc waterfall we decided to hike to Muckross House and Gardens. This turned out to be one of the best days we had in Ireland. The current Tudor styled house designed by architect William Burn for the owners Henry and Mary Herbert is well preserved and is open for tours. The House and 11,000 acres estate was gifted to Ireland a few years after the deaths of then current owner Maud and her husband Arthur Rose Vincent. The estate eventually became the first national park of the Republic of Ireland in 1964. The garden went through some extensive upgrades during the 1850s for the arrival of Queen Victoria's visit in 1861. The arboretum has a large collection of trees from the southern hemisphere with rhododendrons and azaleas that were in full bloom in May. The rock garden made with natural limestone has a wide variety of plants including ferns that can be seen on your way to the restaurant behind the house. Other features include an ornate sunken garden and walled garden. After hiking 10 miles that day

and touring the house and garden we took alternative transportation back to our car which we left at the Yellow Loop Trail near Torc waterfall.

County Waterford

Mount Congreve Gardens

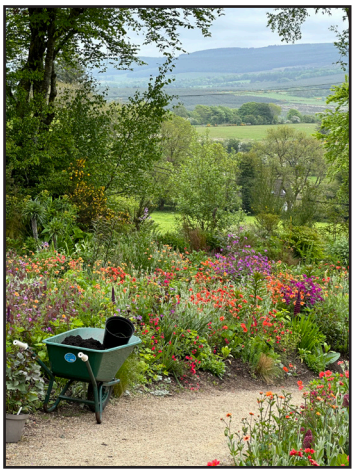
Mount Congreve Gardens is part of the Waterford Garden trail near the city of Kilmeaden. Situated near the river Suir it has one of the largest collections of plants in the world. The garden has 70 acres of plants and over 9 miles (16km) of trails. The home was built in 1760 by local architect John Roberts. The property was passed onto the state in 2011 after the death of Ambrose Congreve. The main feature of the garden includes a 4 acres walled garden where fruit and vegetables are grown. Climbing plants like roses, wisteria and honeysuckle are underplanted with herbaceous plants. A woodland garden with a large collection of magnolias, 600 camellias and conifers and over 2000 rhododendrons. A fragrant garden between the walled and woodland garden will give you a sense of sweet smells and is best visited in spring when there is much blooming. The Herman Magnolia trail has hundreds of varieties not to be missed. There is also a rockery and a Chinese pagoda recently planted with ferns. In 2020 the ground floor was restored and includes a new visitor center. The newly updated Stables Cafe and garden shop are not to be missed.

County Wicklow

Two highly acclaimed disparate brother and sister gardens.

Hunting Brook Gardens

Hunting Brook Garden in County Wicklow is a plant lover's dream. Opened in 2002 the garden has a growing 5 acres collection of exotic plants and 15 acres of woodland with a small stream. Owner Jimi Blake not only teaches online courses he is willing to share his knowledge and love of plants during your garden visit. From the moment you enter the garden you are treated to a tapestry of flowers that will give your camera finger a good workout. In May during our visit the beds were filled with alliums, *Lupin* a variety called 'Masterpiece', geums and many more perennials. As the path curves around the house, you will see a variety of native and exotic ferns, perennials rodgersia, hardy *Impatiens omeiana*, epimediums, *Persicaria var.* Purple Fantasy, euphorbias and mahonias. There is a large variety of cacti and succulents in a sand garden mixed with alpine and Mediterranean plants. He has a section of plants for sale and a greenhouse. The beds next to the greenhouse were being updated with new exotic ferns and perennials. Take the path down into the valley following the steam and you'll see a collection of large leafed rhododendrons, magnolias and Japanese maples. Here also is a variety of ferns ranging from *Matteuccia struthiopteris* to my favorite tree fern *Cyathea dealbata* with its silver backed fronds.

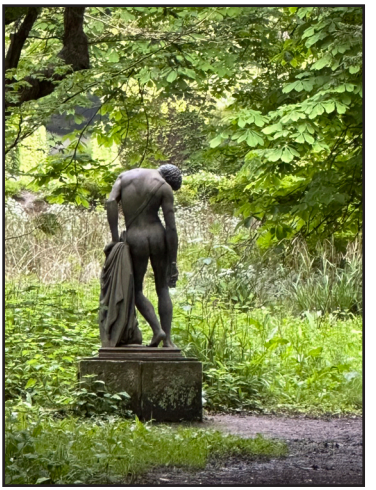


June Blake's Garden

A three-minute drive from the above Hunting Brook gardens is sister June Blake's 3 acres garden. June is a renowned plantswoman with an artistic eye. Entering the garden, you drive through an impressive tree tunnel. Her garden wraps around her historical farmhouse cottage. The garden is intricately planted with herbaceous borders of stunning color, flower meadows and stretches of woodland intersected by stone paths. A formal rectangular pool creates a reflection of the flowers, trees and the sky. Also on the property are architecturally award-winning rental units created from a few of the derelict farm buildings.

Killruddery House and Garden

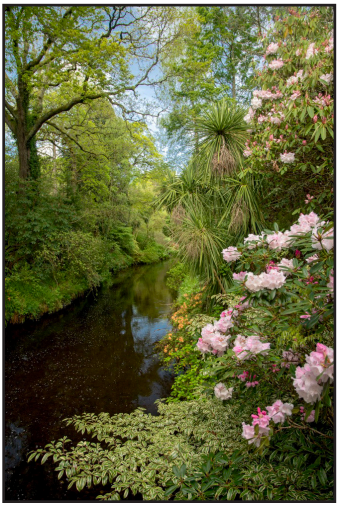
Killruddery is an 800 acres estate only 30 minutes from Dublin and has it all. Established by the 4th and 6th Earls of Meath it is now overseen by the 15th Earl. The gardens include miles of hedges, flowering borders, ancient trees and a walled garden. There are many impressive 19th century classical sculptures and statues that were collected by the family placed throughout the garden. The Orangery built in 1852 was inspired by the Crystal Palace in London. It also houses a collection of these artifacts. Besides the amazing gardens that surround the estate, there is a bio diverse farm, tea room, farm shop, grain store and pizza shed. Plan to spend some time here.



Mount Usher Gardens

Mount Usher Gardens are laid out in 'Robinsonian' style. This style is named after William Robinson who helped introduce the herbaceous border or mixed border. These borders were planted heavily with no bare soil exposed and untidy edges. This wild gardening idea promoted the use of hardy and semi hardy perennials combined with shrubs both native and non-native and were arranged in groupings and drifts that mimic a natural garden. Highly recommend reading is his book *The Wild Garden*.

Mount Usher has some of the largest collections in Ireland of northern and southern hemisphere conifers, nothofagus (southern beeches), eucalyptus and eucryphia. Along the Azalea Walk Trail you will find rare rhododendrons, azaleas mixed in with ferns with a backdrop of Mexican blue pine, Japanese white pine, Tasmanian Cedar, Handkerchief tree and Watson's Magnolia. You can download a tree trail PDF from their website listing important trees and their locations in the garden's map. You can easily spend a half day at this garden.

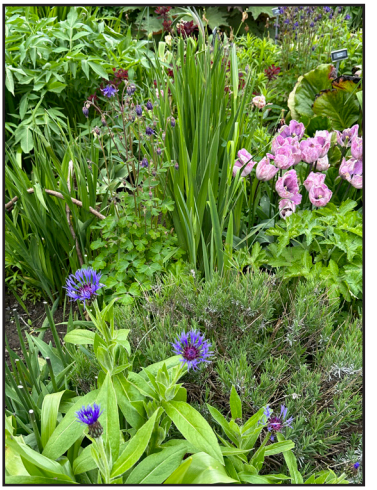


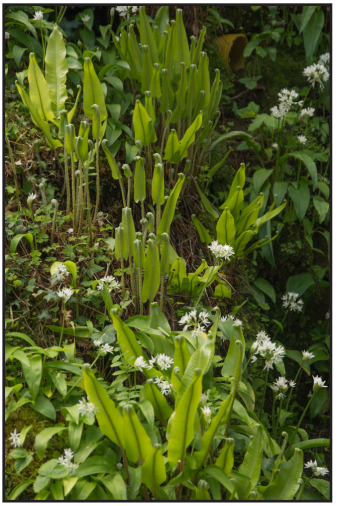
National Botanic Gardens, Kilmacurragh

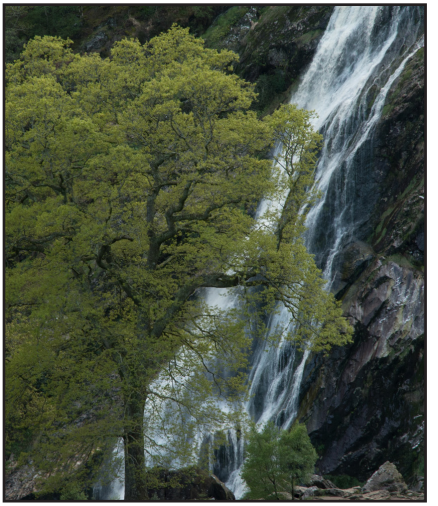
The National Botanic Gardens, Kilmacurragh has 52 acres of wild Robinsonian gardens. The gardens began in 1712. After being abandoned, the Office of Public Works acquired the property in 1976. The operation was then transferred to the National Botanical Garden in 1996. Due to different soil conditions and climate many imported calcifuge species survived making this garden a perfect place for plants that don't like alkaline soil. In the garden you will see a nice collection of rhododendrons. These rhododendrons became part of the National collection. Also, a number of rare trees, ferns, herbaceous borders, camellias, conifers and magnolias can be found.

Powerscourt Estate

Powerscourt Garden is one of the best gardens of the world. With 47 acres of gardens there is something for everyone to see. The original castle was built in the 13th century and was upgraded to a country home in the 18th century by architect Richard Cassels between 1730 to 1741. In the 19th century Mervyn Wingfield became the 7th Viscount of Powerscourt at the age of 21 and he created the new gardens which were completed in 1880. Not to be missed are the Italian gardens, walled gardens, dolphin pond, pet cemetery, Triton lake and my favorite place to see ferns is in the Japanese garden and grotto. Budget time to have lunch at Avoca Terrace Cafe, shopping can be found at the Grand Pavilion, the nursery and distillery. The Powerscourt waterfall has hiking trails with ferns and beautiful oak trees. It can be saved for last due to its later closing time. Before Covid close to half a million people a year visited Powerscourt, go in early spring or fall to avoid the big crowds.







Christmas Ferns: A Small Step Towards Climate Solutions

Article by Elizabeth McCoy, Photos by Sue Olsen
Virginia Extension Master Gardener and Tree Steward

As more and more of us feel the effects of chaotic weather patterns and climate change on our own communities and families, we know that waiting for governments and corporations to 'solve' the problem is no longer enough. We each explore ways that we can make a personal, positive difference in this very personal circumstance. Whether we worry about heat or storms, flooding or high winds, we understand that many communities around the planet are also experiencing rapid and life altering changes because of the weather.

Carbon dioxide, one of the major greenhouse gasses that absorbs and traps heat in our atmosphere, is produced by various natural and manmade processes which include burning wood and fossil fuels. According to measurements carried out at the Hawaiian Mauna Loa observatory, at an altitude of 3400m, the 'parts per million' of carbon dioxide in our atmosphere has steadily increased since record keeping began there in 1958. Staff measured 420.41 ppm of CO2 in the air at Mauna Loa in February of 2023.

Analysis from NOAA's Global Monitoring Lab indicated that the global average of atmospheric carbon dioxide was 414.72 ppm in 2021. That reading showed an increase of 2.58 ppm over readings in 2020. Scientists have determined that natural carbon 'sinks,' like forests and plant life in oceans and lakes, removed approximately half of the carbon emitted each year between 2011 and 2020. The amount of carbon

in the atmosphere increases each year because as we continue to emit carbon in a variety of ways, we haven't been able to capture and sequester enough to keep our planet's atmosphere in balance. As we continue to emit more carbon than we sequester each year the concentration of carbon in our atmosphere continues to increase.

This isn't the first time that there have been large concentrations of carbon dioxide in Earth's atmosphere. Greenhouse gasses were also dangerously high fifty-five million years ago, according to research described in the Scientific American in July of 2014. A team of scientists involved in an Arctic Coring Expedition in 2004 discovered evidence of atmospheric carbon above 2500 ppm from those ancient times.

Carbon levels began to drop significantly over the next million years. According to scientists analyzing those ice core samples, a tiny water fern called Azolla, that lived in nutrient rich bodies of water at that time, helped absorb enough carbon to reduce atmospheric carbon levels.

Seven species of Azolla still grow across much of our planet today, thriving in as little as an inch of water. This plant reproduces so quickly that it is considered an invasive aquatic species in some areas. A. caroliniana, also known as mosquito fern, lives in bodies of water across much of North America in Zones 7-11. It is used as animal feed, green fertilizer, and may be developed as a biofuel. Canadian researchers have ongoing experiments in growing Azolla to absorb carbon while creating a new food source not only for livestock, but perhaps for people, too. It is nutritious.

Carbon levels continued to drop in Earth's atmosphere as plant life evolved and flourished. We know that plants absorb and sequester enormous amounts of carbon dioxide, which they use for their own respiration and carbohydrate production. Carbon is deposited in wood, leaves, and roots as cellulose.

The Nature Conservancy's director of forest carbon science, Bronson Griscom, has long believed that nature itself is a significant factor in the solution to climate change. According to Griscom, "We tend to think of nature as a victim, but there's been less attention to the phenomenal resilience and power of nature to heal. The ability of nature to solve problems just doesn't get enough attention."

The Nature Conservancy, along with many other conservation groups, corporations and governments have made reforestation a major focus of their efforts to capture and sequester carbon, thus 'offsetting' carbon emissions from human activities. For a while now, the best advice to an individual wanting to make a positive difference on this front, and perhaps offset some of their own carbon emission, has been to "Go plant a tree."

Planting and caring for trees to mitigate carbon isn't bad advice, so far as it goes. Even if we are not able to plant a new tree every year, we can contribute to charitable organizations involved in reforestation. But small stories show up in our news feed from time to time describing the effectiveness of smaller efforts.

All plants absorb and sequester carbon, not just trees. Though a single tree might be able to absorb and sequester hundreds of pounds of carbon each year, smaller plants like shrubs, succulents, flowering perennials, and ferns play their part, too.

Consider the tiny Azolla fern, which grows on water and captures carbon in biomass, much like algae does. In quantity, even tiny plants absorb significant amounts of carbon. As they die, the carbon in their leaves, stems and roots is returned to the soil, where it remains until the soil is disturbed.

For those of us who don't have room to plant another tree, or perhaps don't have room in a small space to plant any tree, we can still have a positive impact by planting other, smaller, evergreen plants. Evergreen plants continue to absorb and sequester carbon throughout the year, even while deciduous trees take a rest in the winter.

The native Christmas fern, *Polystichum acrostichoides*, is an excellent choice for small scale restoration and carbon sequestration in residential areas in USDA Zones 3-9. If you drive through the Virginia woods on a winter day, you may notice tufts of Christmas fern glowing in the winter sunlight. Christmas fern grows in deep shade to partial sun and is highly drought tolerant once established. Each plant grows as a vase-shaped clump, 1'-3' tall. It grows from a rhizome, which expands the clump over time. The Christmas fern grows on a variety of soil types, from thin gravelly soil on the sides of mountains to rich, swampy soils here near the coast. Though it prefers acidic to neutral soil, it is tolerant of soil chemistry. It will grow beside brick foundations and other masonry. It produces a large root system and is effective to prevent erosion. Small birds find shelter under its fronds and pick the furry scale like hairs near the bottom of each frond to line their nests. Best of all, Christmas fern requires no fertilizer or other chemical inputs to thrive. It will only need watering during a summer drought.

After admiring native, naturalized Christmas ferns growing along the Colonial Parkway this past winter, I decided to add a significant planting of them to the ground layer of my own wooded garden. This evergreen species is widely available in our area. I was fortunate to find a local nursery able to order flats of *P. acrostichoides* in 2" plugs, which allowed me to plant 64 of these ferns under established trees and shrubs in our yard this spring.

Any evergreen fern will perform the same functions of cleaning carbon, and other pollutants from the air, and covering the ground to hold carbon in the soil. Other large, evergreen ferns also provide shelter to small birds and other animals. Good choices for our area include *Dryopteris erythrosora*, the autumn fern (Zones 6-12); the Asian *P. polyblepharum* or Korean tassel fern (Zones 5-8); the Mediterranean *P. setiferum* or soft shield fern (Zones 7-9); and Asian holly ferns, *Cyrtomium falcatum* (Zones 7-10) and *C. fortunei* (Zones 6-9). These hardy, resilient ferns survive unpredictable weather and are widely available from local nurseries.

Even evergreen shrubs, flowering evergreen perennials like hellebores, mosses and groundcover vines will capture and sequester carbon throughout the year. They all have a role to play. I decided to choose a native fern already common and naturalized in our area for this project to enhance my woodland garden, while also making a positive environmental impact.

When presented with a challenge like a warming climate and the dramatic weather patterns resulting from it, we need to bring all our creative thinking and dedicated effort to the table. None of us can wait for someone else to 'solve the problem.' We all need to begin now, where we are, with whatever resources we have, to make our own personal best effort to help meet the challenges of our times. If that means planting a single fern in a pot by our own back door, that is a first step in the direction of creating positive change.

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Ferns of Ireland

Photos by Carl Wright

Photos by Dave Gibson

Dicksonia antarctica Foto House
County Cork

Dicksonia antarctica naturalizing in
Derreen Garden County Kerry

Blechnum covered in
rhododendron flowers

Dicksonia antarctica Derreen Garden
County Kerry

Lophosoria quadripinata
Hunting Brook Gardens
County Wicklow

Matteuccia struthiopteris Mount
Usher Gardens County Wicklow

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